

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. Please amend the claims as follows:

Listing of Claims:

1. (Previously Presented) A method for processing information in a communication system, comprising:

partitioning, at an access point, a control channel used for transmitting control information into a plurality of subchannels;

selecting, for each of at least two user terminals, one of the subchannels to be used for transmitting control information from the access point to the respective user terminal, based on one or more selection criteria; and

transmitting control information on the control channel from the access point, wherein at least two of the subchannels are operated at different data rates.

2. (Original) The method of claim 1 wherein the control information is transmitted in a segment of a data frame specifically allocated for the control channel.

3. (Previously Presented) The method of claim 1 wherein each different data rate is associated with a different set of operating parameters.

4. (Original) The method of claim 3 wherein the operating parameters are selected from the group consisting of a code rate, a modulation scheme, and a signal-to-noise ratio (SNR).

5. (Previously Presented) The method of claim 1 wherein control information is transmitted on the plurality of subchannels sequentially in an order from a subchannel with a lowest data rate to a subchannel with a highest data rate.

6. (Previously Presented) The method of claim 5 wherein control information transmitted on one of the subchannels includes a field to indicate whether control information is also transmitted on other subchannels.

7. (Original) The method of claim 6 wherein the field comprises a plurality of bits each of which corresponds to a particular subchannel and is used to indicate whether the corresponding subchannel is present in the segment allocated for transmitting control information.

8. (Original) The method of claim 1 wherein the one or more selection criteria are selected from the group consisting of a first criterion corresponding to a link quality associated with the respective user terminal, a second criterion corresponding to quality of service requirements associated with the respective terminal, and a third criterion corresponding to a subchannel preference indicated by the respective terminal.

9. (Previously Presented) A method for processing information in a communication system, comprising:

segregating, at an access point, a control channel into a plurality of subchannels;

transmitting control information on the control channel, wherein at least two of the subchannels are operated at different data rates, the control channel comprising control information including resource allocation information from the access point to a user terminal on a particular subchannel of the plurality subchannels selected for the user terminal, based on one or more selection criteria; and

decoding, at the user terminal, one or more subchannels of the plurality of subchannels to obtain control information designated for the user terminal.

10. (Original) The method of claim 9 wherein decoding comprises:

performing a decoding procedure to decode the one or more subchannels, starting with a subchannel operated at a lowest data rate, until at least one of a plurality of conditions is met.

11. (Original) The method of claim 10 further comprising:

terminating the decoding procedure if one of the plurality of conditions is met.

12. (Original) The method of claim 11 wherein the plurality of conditions includes a first condition indicating a failure to correctly decode one of the plurality of subchannels.

13. (Original) The method of claim 11 wherein the plurality of conditions includes a second condition indicating that control information designated for the user terminal has been obtained from one of the plurality of subchannels.

14. (Original) The method of claim 11 wherein the plurality of conditions includes a third condition indicating that all subchannels have been processed.

15. (Original) The method of claim 10 wherein performing a decoding procedure comprises:

determining whether information transmitted on a subchannel has been correctly received, based on a quality metric corresponding to the respective subchannel.

16. (Original) The method of claim 15 wherein the quality metric comprises a cyclic redundancy check (CRC).

17. (Original) The method of claim 10 wherein performing a decoding procedure comprises:

determining whether control information designated for the user terminal is present in the respective subchannel, based on an identifier associated with the user terminal.

18. (Original) The method of claim 17 wherein the identifier comprises a Medium Access Control (MAC) identifier.

19. (Original) The method of claim 9 wherein the one or more selection criteria are selected from the group consisting of a first criterion corresponding to operating conditions of the respective user terminal, a second criterion corresponding to quality of service requirements associated with the respective terminal, and a third criterion corresponding to a subchannel preference indicated by the respective terminal.

20. (Previously Presented) An apparatus for processing information in a communication system, comprising:

means for partitioning, at an access point, a control channel that is used for transmitting control information into a plurality of subchannels;

means for selecting, for each of one or more user terminals, one of the subchannels to be used for transmitting control information from the access point to the respective user terminal, based on one or more selection criteria; and

means for transmitting control information on the control channel, wherein at least two of the subchannels are operated at different data rates.

21. (Original) The apparatus of claim 20 wherein each subchannel is associated with a distinct set of operating parameters including a code rate, a modulation scheme, and an SNR.

22. (Original) The apparatus of claim 20 wherein the plurality of subchannels are transmitted sequentially in an order from a subchannel with a lowest data rate to a subchannel with a highest data rate.

23. (Original) The apparatus of claim 22 wherein a subchannel that is transmitted first in the plurality of subchannels includes a field to indicate whether other subchannels are also being transmitted.

24. (Original) The apparatus of claim 20 wherein the one or more selection criteria including a first criterion corresponding to a link quality associated with the respective user terminal, a second criterion corresponding to quality of service requirements associated with the respective terminal, and a third criterion corresponding to a subchannel preference indicated by the respective terminal.

25. (Previously Presented) An apparatus for processing information in a communication system, comprising:

means for segregating, at an access point, a control channel into a plurality of subchannels;

means for transmitting control information on the control channel, wherein at least two of the subchannels are operated at different data rates, the control channel comprising control information including resource allocation information from an access point to a user terminal on a particular subchannel of the plurality subchannels selected for the user terminal, based on one or more selection criteria; and

means for decoding, at the user terminal, one or more subchannels of the plurality of subchannels to obtain control information designated for the user terminal.

26. (Original) The apparatus of claim 25 wherein means for decoding comprises:
means for performing a decoding procedure to decode the one or more subchannels, starting with a subchannel operated at a lowest data rate, until at least one of a plurality of conditions is met.

27. (Original) The apparatus of claim 26 wherein the plurality of conditions includes a first condition indicating a failure to correctly decode one of the plurality of subchannels, a second condition indicating that control information designated for the user terminal has been obtained from one of the plurality of subchannels, and a third condition indicating that all subchannels have been processed.

28. (Original) The apparatus of claim 25 wherein means for performing a decoding procedure comprises:
means for determining whether information transmitted on a subchannel has been correctly received, based on a quality metric corresponding to the respective subchannel; and
means for determining whether control information designated for the user terminal is present in the respective subchannel, based on an identifier associated with the user terminal.

29. (Original) The apparatus of claim 25 wherein the one or more selection criteria including a first criterion corresponding to operating conditions of the respective user terminal, a second criterion corresponding to quality of service requirements associated with the respective terminal, and a third criterion corresponding to a subchannel preference indicated by the respective terminal.

30. (Previously Presented) An apparatus for processing information in a communication system, comprising:
a controller configured to select, at an access point, at least one of a plurality of control subchannels to send control information to each of at least two user terminals, based on one or more selection criteria; and

a transmitter configured to transmit control information on the control channel from the access point, wherein at least two of the subchannels are operated at different data rates, the control channel comprising control information including resource allocation information from an access point to a user terminal on a particular subchannel of the plurality subchannels selected for the user terminal, based on one or more selection criteria.

31. (Original) The apparatus of claim 30 wherein each subchannel is associated with a specific set of operating parameters, including a data rate at which control information is transmitted, a code rate, a modulation scheme, and an SNR.

32. (Original) The apparatus of claim 30 wherein the plurality of subchannels are transmitted sequentially in an order from a subchannel with a lowest data rate to a subchannel with a highest data rate.

33. (Original) The apparatus of claim 30 wherein the one or more selection criteria including a first criterion corresponding to a link quality associated with the respective user terminal, a second criterion corresponding to quality of service requirements associated with the respective terminal, and a third criterion corresponding to a subchannel preference indicated by the respective terminal.

34. (Previously Presented) An apparatus for processing information in a communication system, comprising:

a receiver configured to receive information on one or more control subchannels, at least two of which being operated at different data rates; and

a decoder configured to decode the one or more control subchannels to obtain control information designated for a particular user terminal, starting with a subchannel operated at a lowest data rate, until at least one of a plurality of conditions is met.

35. (Original) The apparatus of claim 34 wherein the plurality of conditions includes a first condition indicating a failure to correctly decode one of the plurality of subchannels, a second condition indicating that control information designated for the user terminal has been obtained from one of the plurality of subchannels, and a third condition indicating that all subchannels have been processed.

36. (Original) The apparatus of claim 34 wherein the decoder is configured to determine whether information transmitted on a subchannel has been correctly received, based on a quality metric corresponding to the respective subchannel and to determine whether control information designated for the user terminal is present in the respective subchannel, based on an identifier associated with the user terminal.

37. (Previously Presented) A memory unit having software codes stored thereon, the software codes being executed by a processor for:

partitioning a control channel used for transmitting control information into a plurality of subchannels;

selecting, for each of one or more user terminals, one of the subchannels to be used for transmitting control information from an access point to the respective user terminal, based on one or more selection criteria; and

transmitting control information on the control channel, wherein at least two of the subchannels are operated at different data rates.

38. (Previously Presented) The memory unit of claim 37 wherein each subchannel is associated with a set of operating parameters, including a data rate at which control information is transmitted, a code rate, a modulation scheme, and an SNR.

39. (Previously Presented) The memory unit of claim 37 wherein the one or more selection criteria including a first criterion corresponding to a link quality associated with the respective user terminal, a second criterion corresponding to quality of service requirements associated with the respective terminal, and a third criterion corresponding to a subchannel preference indicated by the respective terminal.

40. (Previously Presented) A memory unit having software codes stored thereon, the software codes being executed by a processor for:

receiving information on one or more control subchannels, at least two of which being operated at different data rates; and

decoding information transmitted on the one or more control subchannels to obtain control information designated for a particular user terminal, starting with a subchannel operated at a lowest data rate, until at least one of a plurality of conditions is met.

41. (Previously Presented) The memory unit of claim 40 wherein the plurality of conditions includes a first condition indicating a failure to correctly decode information transmitted on one of the plurality of subchannels, a second condition indicating that control information designated for the user terminal has been obtained from one of the plurality of subchannels, and a third condition indicating that all subchannels have been processed.

42. (Previously Presented) The memory unit of claim 40 wherein the decoding comprises determining whether information transmitted on a subchannel has been correctly received, based on a quality metric corresponding to the respective subchannel and to determine whether control information designated for the user terminal is present in the respective subchannel, based on an identifier associated with the user terminal.

43. (Previously Presented) A method for processing information in a system, comprising:

receiving, at a user terminal, information on one or more control subchannels, at least two of which being operated at different data rates; and

decoding information transmitted on the one or more control subchannels to obtain control information designated for a particular user terminal, starting with a subchannel operated at a lowest data rate, until at least one of a plurality of conditions is met.

44. (Original) The method of claim 43 wherein the plurality of conditions includes a first condition indicating a failure to correctly decode one of the plurality of subchannels, a second condition indicating that control information designated for the user terminal has been obtained from one of the plurality of subchannels, and a third condition indicating that all subchannels have been processed.

45. (Original) The method of claim 43 wherein decoding comprises:

determining whether information transmitted on a subchannel has been correctly received, based on a quality metric corresponding to the respective subchannel; and

determining whether control information designated for the user terminal is present in the respective subchannel, based on an identifier associated with the user terminal.